



EU activities in CMM and CBM

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● Energy & climate objectives

- European Climate change and Energy Policy – European Climate Change Programme
- UNFCCC approved by Council Decision 94/69/EC
- Ratification of the Kyoto Protocol – Council Decision 2002/358/EC – 8 % CO₂ reduction obligation by 2012 (vs 1990)
- To limit global warming to max 2 C° above pre-industrial level
- GHG: -20% (CPH -30%), efficiency +20%, RES: +20% by 2020
- Achieve the stabilisation of GHG concentrations in the atmosphere by reducing GHG emissions
- Reduction of Methane emissions — GHP is 21 times higher than that of CO₂

● **Barriers for the use of CMM**

- Recognition of the benefits of CMM to reduce fatalities, and injuries of mine workers, to protect mine property and to reduce greenhouse gas emissions and efficiently utilize valuable energy resources
- Lack of recommended principles and standards to guide mining operators, regulators and professionals in more effectively managing their methane problems, especially in emerging economies
- Insufficient knowledge about possibilities and concepts for energetic use of CMM gases- missing economic options in case of high methane content and low methane content
- Changing gas composition / the fluctuant and not predictable gas quality and amount
- Different economic conditions hindering the technology transfer of Western European technology and concepts

● Overview of EU commitment

- Membership in Methane to Markets (M2M) Partnership since September 2007 - represented in the working groups on the coal sector and on oil and gas operations
- Membership in the UNECE Ad Hoc Group of Experts on Coal Mine Methane
- Focus on supporting projects in third countries to further develop and demonstrate CMM and CBM technologies
- Financing projects under Framework Programme for Research (current FP 7), Thematic Programme for Environment and Sustainable Management of Natural Resources (ENTRP) and Research Fund for Coal and Steel (RFCS)

● FP 7 Activity - Energy 2007 5&6.2.5.in CMM

- FP7, Call WP2007: “Extending the value chain for GHG emissions other than CO2 with coal production and use” – CoMeth

Content:

- » New solution for use of CMM in those countries with big coal deposits

Impact:

- » Development of a viable strategy to recover methane and use it as an energy source

Type:

- » Collaborative project – coordinated by Fraunhofer Gesellschaft e.V. – started 1.11.2008

● FP 7 activity Energy 2007 5&6.2.5. in CMM

Content and project objective:

- Development of an universal decision guidance for optimal use of CMM –methods for economically interesting schemes for potential investors
- Analysis of legal/ administrative situation (in part. East Europe - PL,CZ, RU, UA, RO, KZ as well as UK)
- Development and operation of test units for new technologies like VAM and liquefaction (two project sites in Russia and Ukraine are selected)
- Analysis of emission reduction potential of CMM utilisation

● **FP 7 activity Energy 2010 5 & 6.2.1. in CMM/CBM**

- FP 7 Call WP 2010 “ Extending the value chain for GHG emissions other than CO2”

Content:

- » to develop new strategies and technologies to extract methane in a controlled way

Type :

- » Collaborative project - Submission deadline : 04.03.2010

● Research Fund for Coal and Steel projects

- **COALSWAD Project** : “ Investigation of adsorption and swelling behaviour of coal to determine the feasibility of CO₂ sequestration and CH₄ production enhancement”
 - » Started July 2008 for 36 months
 - » Project gathers 7 entities and is lead by Fraunhofer Gesellschaft e.V.
- **Objective**: Estimation of CO₂ sequestration capacity and CH₄ production rate in coal

● Research Fund for Coal and Steel projects

- **HUGE project:** “ Hydrogen oriented underground coal gasification for Europe
 - » Started in July 2007 until 30.06.2010
 - » Project gathers 11 entities and is lead by GIG Poland
- **Objective:** Underground gasification of coal in a dynamic geo-reactor and CBM usage and CO2 sequestration in coal deposits

● **Research Fund for Coal and Steel projects**

- **CO2freeSNG project:** “Substitute natural gas from coal with internal sequestration of CO2”
 - » Started in July 2009 for 36 month
 - » Project gathers 4 entities and is lead by the Technical University of Graz (Austria)
- **Objective:** Scale up gasification, methanation and sequestration technologies that have been developed for the conversion of biomass – evaluate technical and economical application of this concept for coal by tests at an existing gasification plant

● **EU- China project on CBM**

- Project under EU-China Energy and Environment Programme – “Feasibility study of CBM in China”
- Finished in March 2008
- Report at <http://www.eep.org.cn/eepcomponents25.htm?d=342920290108&c=download&p=553903220408>
- Study explored CBM resources in china, the available technology to extract and the technical barriers and economic assessment of CBM resources in China

● Outlook

- Provide assistance for methane recovery and utilisation technology by developing guidance and methods
- Cooperation in reduction and use of methane as part of the energy dialogues and bilateral coordination's with coal countries such as Russia, Ukraine, India and South Africa
- Further activities under the EU-China Action Plan on Clean Coal and the EU-China Energy and Environment Programme
- Regular calls for proposals under 7th Research Framework Programme (FP7) to include methane topics
- Possible projects under EU Thematic Programme for the environment and sustainable management of natural resources, including energy period 2007- 2010 - ENTRP- for example in Eastern Europe and Asia
- Diversification of inputs to Methane To Markets Partnership